IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
REQUEST FOR FILING APPLICATION UNDER RULE 53(b)

Pursuant to 37 CFR 1.53(b), please file a ☒ continuation/☐ divisional of the pending prior PATENT APPLICATION of:
Inventor: GREEN et al.
Serial No. 09/001,484
Filed: December 31, 1997

Atty Dkt.: 850-16
C# M#
Date: September 18, 2000
Group: 2745
Examiner: Vo, N.

For: **SATELLITE BROADCAST RECEIVING AND DISTRIBUTION SYSTEM**

Assistant Commissioner for Patents
Washington, DC 20231
Sir:

This request for filing under Rule 53(b) is made by the following named inventor(s) (using the above-identified title):
Inventor(s): GREEN et al.

☒ Attached is a true copy of the grandparent application as originally filed including the specification, claims, Oath/Declaration and drawings (if any) and abstract (if any). No amendments (if any) referenced in the Oath or Declaration filed to complete the prior application introduced new matter.

☐ Priority is hereby claimed under 35 USC 119 based on the following foreign applications, the entire content of which is hereby incorporated by reference in this application:

Application Number	**Country**	**Day/Month/Year/Filed**

☐ certified copy(ies) of foreign application(s) attached or
☐ already filed on _____ in prior appln. no. _____ filed _____
☐ already filed in _____ filed _____

☐ Please amend the specification by inserting before the first line: -- This application claims the benefit of U.S. Provisional Application No. , filed , the entire content of which is hereby incorporated by reference in this application.--

☐ The prior application is assigned to .

☒ Power of Attorney has been granted to Robert W. Faris et al, Reg. No. 31,352 of Nixon & Vanderhye P.C., 1100 N. Glebe Rd., 8th Flr, Arlington, VA 22201.

☒ Address all future communications to: Nixon & Vanderhye P.C., 1100 N. Glebe Rd., 8th Floor, Arlington, VA 22201.

☐ Please amend the specification by inserting before the first line --This is a of application Serial No. , filed , now pending, the entire content of which is hereby incorporated by reference in this application.--

☐ "Small entity" statement of record. ☐ "Small entity" statement attached.

☐ Petition filed in prior application to extend its life to insure copendency.

☒ The Examiner's attention is directed to the prior art cited in the parent application by applicant and/or Examiner for the reasons stated therein.

☒ Please enter the attached and/or below preliminary amendment **prior** to calculation of filing fee:

☒ The entire disclosure of the prior application above-referenced is considered as being part of the disclosure of this new application and is hereby incorporated by reference therein.

FILING FEE IS BASED ON CLAIMS AS FILED LESS ANY HEREWITH CANCELED

Basic Filing Fee					$	690.00
Total effective claims	11	- 20 (at least 20) =	0	x $ 18.00	$	0.00
Independent claims	3	- 3 (at least 3) =	0	x $ 78.00	$	0.00
If any proper multiple dependent claims now added for first time, add $260.00 (ignore improper)					$	0.00
				SUBTOTAL	$	690.00
If "small entity," then enter half (1/2) of subtotal and subtract					-$(	0.00)
				SECOND SUBTOTAL	$	690.00
Assignment Recording Fee ($40.00)					$	0.00
				TOTAL FEE ENCLOSED	$	690.00

Any future submission requiring an extension of time is hereby stated to include a petition for such time extension. The Commissioner is hereby authorized to charge any deficiency in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our **Account No. 14-1140.** A duplicate copy of this sheet is attached.

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NIXON & VANDERHYE P.C.
By Atty: Robert W. Faris, Reg. No. 31,352

Signature: Robert W. Faris

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

GREEN et al. Atty. Ref.: 850-16

Serial No. to be assigned Group: 2745

Filed: concurrently herewith Examiner: Vo, N.

For: SATELLITE BROADCAST RECEIVING AND DISTRIBUTION SYSTEM

* * * * * * * * * * * *

September 18, 2000

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

PRELIMINARY AMENDMENT

In order to place the above-identified application in better condition for examination, please amend the application as follows:

IN THE SPECIFICATION

Please amend the specification as follows:

Page 1, delete lines 3-4 and insert the following:

-- This is a continuation of application Serial No. 09/001,484, now U.S. Patent No. 6,122,482 ; which is a continuation-in-part of application Serial No. 08/838,677, now U.S. Patent No. 5,805,975; which is a continuation-in-part of application Serial No. 394,234, filed February 22, 1995, now abandoned. –

line 8, after "system" insert a comma;

line 11, before "or" insert -- (-- and after "circular", second occurrence, insert --) --;

line 22, delete "comprises" and insert -- comprise --;

line 23, after "unit" insert a comma; and same line 23, after "antenna" insert a comma;

line 24, after "unit" insert a comma; and same line 24, after "set" insert a comma.

Page 2, line 9, after "and" insert a comma;

line 11, after "5,301,352" insert a comma;

line 21, change "short-comings" to – shortcoming --.

Page 3, line 12, after "switch" insert – allows for --; same line, delete "is" and insert – to be --;

lines 15-16, delete ", but rather, selectively.";

line 23, after "signals" insert – to be -- .

Page 4, line 6, delete "be transmitted" and insert – fall --;

line 9, delete "both disclose" and insert -- , discloses --;

line 10, delete "demultiplexed them" and insert -- demultiplexes it --;

line 18, delete "providing" and insert – the system provides --.

Page 6, line 4, before "or" insert -- (--;

line 5, after "circular" second occurrence insert --) --;

line 12, delete "for";

line 15, after "like" add a comma;

Page 7, line 4, change "convert" to – converts –;

lines 17 and 21, change "signal" to – signals – .

Page 12, line 11, delete “for”;

line 24, change “couple” to -- coupled --.

Page 13, line 1, change "illustrated" to – illustrates --;

line 11, delete “converted” and insert -- convert --;

line 12, change "16b" to – 16a --

Page 14, line 4, change "polarization" to – polarity --;

line 11, change “amplifies” to -- amplifiers --;

line 21, change "means 32" to –means 32a--.

Page 15, line 8, change “synchronized” to -- synchronize --;

line 15, change "16a" to – 16b –;

line 19, change "need" to – needed --;

last liine, change “energize” to -- energizes --.

Page 16, line 1, change "16b" to – 16a –;

line 15, change "34a" to – 34b --;

line 24, change "transmuted" to – transported --.

Page 17, line 8, change "is" to – are --;

line 15, change "frequency" to – frequencies --.

Page 18, line 5 delete "(16b)" and insert – (16a and 16b) --;

line 8, delete "its" and insert -- their --;

line 20, change "signals" to – signal --.

Page 20, line 16, change "PLL" to – PPL --;

line 17, change "CH2" to – CH1--;

line 18, after "Capacitors c" insert – , c1, c2, c3 --;

liine 19, delete "lope" and insert -- loop --;

line 22, after "capacitors" delete "c".

Page 21, line 2, delete "enables" and insert -- enable --;

line 5, change "drawings" to -- drawing --;

line 10, change "connect" to -- connected --;

line 14, after "capacitors" delete "c";

line 15, delete "a the" and insert -- a second --;

line 16, after "coupled" insert -- to --;

line 20, delete "chock" and insert -- choke --;

line 22, delete "system" and insert – head out processor--;

lines 22-23, delete "a second" and insert – another -- ;

line 24, delete "second".

Page 22, line 1, change "describe embodiment" to – described embodiments --;

line 7, after "previously", insert a comma;

line 16, delete "14c" and insert – 14b --.

Page 23, line 3, change "amplifies" to -- amplifiers --;

lines 16 and 20, change "two way" to – two-way --;

lines 21-22, delete "signal and frequency" and insert – signals --;

line 22, change "synchronized" to -- synchronize --..

Page 24, line 4, delete "16b" and insert – 16a --;

line 13, delete "14a" and insert – 14b –;

line 14, delete "16b" and insert – 16a --;

lines 16-17, delete "18a or 18b" and insert – 18c --.

Page 25, line 4, delete "This up" and insert – The --;

line 5, change "signal" to – signals --;

lines 5 and 17, change "is" to – are --;

line 24, delete "frequency" and insert – frequencies --;

Page 26, line 12, delete "first and second" and insert – previous --;

line 14, after "previously" insert a comma.

Page 27, line 5, change "converter 36" to – converter 30 --;

line 8, delete "down converter 52d and a" and insert – up converter 30 and an--;

line 12, delete "34a" and insert – 36 --;

line 13, delete "diplexer. Exiting" and insert – diplexer 64. Signals exit --;

line 14, delete "can occur";

lines 23-24, delete "to the proper and desired frequencies.".

IN THE CLAIMS

Please cancel dependent claims 2-6 and amend claim 1 as follows:

1 (Amended). A satellite [broadcasting] signal distribution system for distributing television program signals to satellite receivers having a predetermined receive frequency range, the system comprising:

a satellite dish [coupled to a low-noise block converter] that receives polarized television program signals from at least one satellite;

[said low-noise block converter is coupled to a first means of] a first frequency converter coupled to the satellite dish, the first frequency converter converting at least a first plurality of television program signals received [vertical polarization signals and horizontal polarization signals or left-hand circular polarization signals and right-hand circular polarization signals] from [a] the satellite to a frequency range that is at least partially outside of the satellite receive frequency range, the first frequency converter applying said converted first plurality of television program signals [and transmitting] simultaneously with a second plurality of television program signals received from the satellite [via] onto a single coaxial distribution cable [for enabling] to enable two different [frequencies and polarities] and distinct pluralities of television program signals to be [transmitted] stacked onto the cable and distributed simultaneously [via] over said single coaxial cable;

[a second means is coupled to said first means;]

[said second means] a second frequency converter coupled to the coaxial cable, the second frequency converter further converting said converted first plurality of television signals to a further frequency range that is within the satellite receiver frequency range [converts said vertical polarization signals and said horizontal polarization signals or said left-hand circular polarization signals and said right-hand circular polarization signals from said first means to its original received state from said satellite dish];

[a satellite receiver is coupled to said second means; and said source is coupled to said satellite receiver]

wherein said second frequency converter performs a frequency down-conversion and wherein all of the television program signals within the first plurality of television program signals are received by the satellite dish with a common polarization.

REMARKS

This application is a continuation of allowed application Serial No. 09/001,484; (U.S. Patent No. 6,122,482 to issue 9/19/2000) which is a continuation-in-part of application Serial No. 08/838,677 (now U.S. Patent No. 5,805,975); which is a continuation-in-part of application Serial No. 394,234 filed 2/22/1995, now abandoned.

The specification of this continuation application is identical to that of application Serial No. 08/838,677, filed 04/09/1997. Applicants filed another continuing application

on 7/21/2000 including a specification that is identical to their application Serial No. 08/394,234.

Substitute Specification

This preliminary amendment amends the specification to improve readability and correct typographical and grammatical errors. For the Examiner's convenience, a substitute specification is also attached along with a marked-up copy of the substitute specification showing the matter being added to and deleted from the original specification. Applicants believe that this preliminary amendment contains no new matter, and that the substitute specification thus includes no new matter.

The majority of the proposed specification amendments simply correct typographical and grammatical errors. While applicants have been careful in making these amendments not to inject any new concepts or other "new matter," applicants request the Examiner to carefully review the amendment and raise any "new matter" concerns he may have.

New Claims

The claims have been amended to more particularly point out the invention.

Information Disclosure Statement

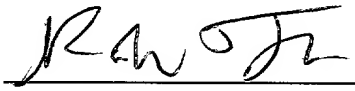
Applicants submit listings from parent application Serial No. 09/001,484 that list all references of record in that case. Applicants request the Examiner to consider each of the listed items in this case. For the Examiner's convenience, applicants are attaching copies of the listed items that are not U.S. patents. Upon request, applicants will submit copies of the listed U.S. patents.

Conclusion

Applicants request an early action on the merits.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: 

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TITLE OF THE INVENTION

SATELLITE BROADCAST RECEIVING AN DISTRIBUTION SYSTEM

~~This is a Continuation-In-Part of Application No. 08/394, 234.~~ This is a continuation of application Serial No. 09/001,484, now U.S. Patent No 6,122,482; which is a continuation-in-part of application Serial No. 08/838,677, now U.S. Patent No. 5,805,975; which is a continuation-in-part of application Serial No. 394,234, filed February 22, 1995, now abandoned.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to a satellite broadcasting receiving and distribution system and more particularly to a broadcasting receiving and distribution system, that will allow for the transmission of vertical and horizontal (or left-hand circular and right-hand circular) polarization signals to be transmitted simultaneously via a single coaxial cable.

2. Description of the Prior Art

Satellite broadcasting has become very popular throughout the United States. Conventionally, broadcast signals are transmitted through an artificial satellite at very high frequencies. These frequencies are generally amplified and are processed by a particular device after received by an antenna or antennas and prior to application to a conventional home television set or the like.

Typically, broadcasting systems comprises an outdoor unit generally associated with the antenna, and an indoor unit, generally associated with the television set, or the like. Both units, indoor and outdoor, are coupled via a coaxial cable.

A problem associated with these types of systems is that they are designed to accept signals through a line of sight. Accordingly, if the satellite is not visual from a building, then the signal cannot be transmitted. Thus, these systems are rendered useless for high-rises, hospitals, schools, and the like. These systems are limited in usage, and, as such, can only be utilized in residential homes.

As an example, US Patent No. 5,301,352, issued to Nakagawa et al. discloses a satellite broadcast receiving system. The system of Nakagawa et al. includes a plurality of antennas which, respectively, include a plurality of output terminals. A change-over divider is connected to the plurality of antennas and includes a plurality of output terminals. A plurality of receivers are attached to the change-over divider for selecting one of the antennas. Tough this system does achieve one of its objects by providing for a simplified satellite system, it does, however, suffer a major short-comings by not providing a means of receiving satellite broadcasting for individuals who are not in the direct line of sight to the antennas. This system is silent to the means of simultaneously transmitting vertical and horizontal polarized signals via a single coaxial cable.

US Patent No. 5,206,954, issued to Inoue et al. and US Patent No. 4,509,198 issued to Nagatomi both disclose yet another satellite system that includes an outdoor unit that is connected to a channel selector. In this embodiment, the satellite signal receiving apparatus receives vertically and horizontally polarized radiation signals at the side of a receiving antenna. The signals are then transmitted, selectively, to provide for either one of the vertically or horizontally polarized signals to be transferred. Hence, utilizing a switch allows for only one polarity ~~is to be~~ transmitted. This design and

configuration provides for one coaxial cable to be utilized, but does not provide for the vertical and horizontal signals to be transmitted simultaneously~~, but rather, selectively~~.

Systems have been attempted for transferring two frequencies on the same co-axial cable. Frequencies of the same polarity can easily be transmitted via a single co-axial cable, however, transmitting two signals, from two sources, each of different polarities can be a challenge. In some satellite configuration systems, once a timing diagram is plotted for the signals to be transmitted, it is seen that a forbidden path occurs between frequencies of 950 MHz and 1070 MHz. Inherently prohibiting the frequencies within that range to be transmitted successfully. Hence, it is desirable to obtain a system which will not allow for conversion to occur at frequencies of the forbidden conversion.

As seen in German Patent Number DE4126774-A1, signals can ~~be transmitted~~ fall within the range of the forbidden path, thereby, providing for a non-working system. Additionally, this product, like the assembly disclosed in Japanese Application No. 63-293399 ~~both~~ discloses a system which receives a single signal and ~~demultiplexed~~ demultiplexes it ~~them~~ into vertical and horizontal polarized signals. Theses systems, are complex and require a numerous amount of components in order to employ the invention. This increase in components will inherently cause an increase in component failure. Further, these systems fail to disclose a means of reconverting the signals into their original frequency and polarity, a necessity for satellite systems. Consequently, the system provides ~~providing~~ a signal which will not maintain its respective polarity.

Accordingly, it is seen that none of these previous efforts provide the benefits intended with the present invention, such as providing a broadcasting receiving and distribution system that will allow for the transmission of vertical and horizontal (or left-

hand circular and right-hand circular) polarization signals to be transmitted successfully and simultaneously via a single coaxial cable. Additionally, prior techniques do not suggest the present inventive combination of component elements as disclosed and claimed herein. the present invention achieves its intended purposes, objectives and advantages over the prior art device through a new, useful and unobvious combination of component elements, which is simple to use, with the utilization of a minimum number of functioning parts, at a reasonable cost to manufacture, assemble, test and by employing only readily available material.

SUMMARY OF THE INVENTION

The present invention provides a satellite broadcast receiving and distribution system that will permit for the transmission of vertical and horizontal or let-hand circular and right-hand circular polarization signals simultaneously via a single coaxial cable. The system of the present invention will accommodate two different polarity commands from two or more different sources at the same time. This satellite broadcast receiving and distribution system of the present invention will provide for the signals received from the satellite to be converted to standard frequencies so as to permit ~~for~~ signals to travel via existing wiring which the present day amplifiers can transport in buildings, high-rises, hospitals, and the like, so that satellite broadcasting can be viewed by numerous individuals by way of a single satellite antenna.

The satellite broadcast system of the present invention comprises a satellite antenna which receives the polarized signals, a head-in frequency processor for converting the polarized signals, a single co-axial cable for transmitting the converted signal, a head-out receiver processor for re-converting the signals to their original

frequency and polarity, and a source, which receivers the signals in their respective original frequency and polarity. Structurally, the head-in frequency processor is coupled to the head-out receiver processor via the single co-axial cable. The source is coupled to the head-out receiver processor.

Hence, to allow for successful conversion, the head-in processor converts the received signals of two different polarities to frequencies which permit for transmission simultaneously. The head-in processor will also accommodate two different polarity commands from two or more different sources at the same time via the signal cable.

The single cable couples the head-in processor to the head-out processor. Once in the head-out processor, the signals are re-converted to their original state for transmission to the source (i.e. television).

Accordingly, it is the object of the present invention to provide for a satellite broadcast receiving and distribution system which will overcome the deficiencies, shortcomings, and drawbacks of prior satellite broadcast systems and signals and polarity transfer methods.

It is another object of the present invention to provide for a satellite broadcast receiving and distribution system that will convert different frequencies and different polarized signals in order to permit the signals to be transmitted via a single coaxial cable.

Another object of the present invention is to provide for a satellite broadcast receiving and distribution system that will provide service to mid/high-rise office buildings, condominiums, schools, hospitals and the like via a single satellite.

Still another object of the present invention, to be specifically enumerated herein, is to provide a satellite broadcast receiving and distribution system in accordance with the preceding objects and which will conform to conventional forms of manufacture, be of simple construction and easy to use so as to provide a system that would be economically feasible, long lasting and relatively trouble free in operation.

Although there have been many inventions related to satellite broadcast receiving and distribution systems, none of the inventions have become sufficiently compact, low coast, and reliable enough to become commonly used. The present invention meets the requirements of the simplified design, compact size, low initial cost, low operating cost, ease of installation and maintainability, and minimal amount of training to successfully employ the invention.

The foregoing has outlined some of the more pertinent objects of the invention. These objects should be construed to be merely illustrative of some of the more prominent features and application of the intended invention. Many other beneficial results can be obtained by applying the disclosed invention in a different manner or modifying the invention within the scope of the disclosure. Accordingly, a fuller understanding of the invention may be had by referring to the detailed description of the preferred embodiments in addition to the scope of the invention defined by the claims taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a block diagram illustrating the components used for the satellite broadcast receiving and distribution system according to the present invention.

Figure 2 is a block diagram representing a first embodiment of the head-in frequency processor and two embodiments of the head-out frequency processor used for the satellite broadcast receiving and distribution system according to the present invention.

Figure 3a is a schematic diagram of the down converter used for the satellite broadcast signal receiving and distribution system according to the present invention.

Figure 3b is a schematic diagram of the up converter used for the satellite broadcast signal receiving and distribution system according to the present invention.

Figure 4 is a block diagram of the second embodiment of the satellite broadcast signal receiving and distribution system according to the present invention.

Figure 5 is a block diagram of the third embodiment f the satellite broadcast signal receiving and distribution system according to the present invention.

Similar reference numerals refer to similar parts throughout the several views of the drawings.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

As illustrated in figure 1, the satellite system 10 of the present invention includes a receiving satellite 12 that will transmit signals (Vertical-polarized signals and Horizontal-polarized signals or left-hand circular and right-hand circular polarization signals) to a head-in equipment frequency processor 14. It is at this head-in equipment frequency processor 14 where the signals are received simultaneously and then transmitted via a single coaxial cable 16 to the head-out receiver processor 18. This will enable ~~for~~ the single coaxial cable 16 to transmit signals of two different polarities and frequencies simultaneously. From the head-out frequency processor the signals are

reconverted to its original state and then transmitted to a source 20. As seen in figure 1, the two different polarities (Vertical-polarized signals and Horizontal-polarized signals or left-hand circular and right-hand circular polarization signals) are transported to the source via separate cables 22a and 22b, respectively.

The system of the present invention includes separate embodiments, and the first embodiment is illustrated in figure 2. A seen in the first embodiment of the present invention 10a, there is shown a head-in frequency processor 14a couple to either a first head-out frequency processor 18a or a second head-out frequency processor 18b.

It is noted that figure 2 illustrate~~d~~ the head-in processor 14a to be coupled to two separate head-out processors 18a and 18b, respectively. This is shown for illustrative purposes only. In actuality, only one head-out receiver processor is utilized with the head-in processor 14a. The type and embodiment used for the head-out receiver processor is dependent to the combination f the satellite receiver and source that is utilized.

As seen in figure 2, the head-in equipment frequency processor 14a will receive two signals or two separate polarities and convert~~ed~~ them to separate frequencies for enabling transmission via a single coaxial cable 16a~~b~~.

A low-noise block converter (LNB) 24 will receive the signals from the satellite 12. This LNB 24 is conventional and is used for amplifying the respective polarized signals (Vertical-polarized signals and Horizontal-polarized signals or left-hand circular and right-hand circular polarization signals). Accordingly, after signals are received, they pass the low-noise block converter 24, to provide for the signals to enter the head-in

equipment frequency processor 14a (illustrated in figure 2 as dashed lines) via conduits 26a and 26b, respectively.

The head-in equipment frequency processor 14a, illustrated in figure 2, provides for the signals to be converted, via converters 28 and 30, to the frequencies which the present day amplifiers can transport. In this stage of the system, the object is to convert the signals of one polarity up (via converter 30) and to convert the signals of second ~~polarization~~ polarity down (via converter 28). This will render the converted signals to be transmitted without emerging into the forbidden frequency conversion.

From the conduits 26a and 26b, the signals are transmitted to a first converter or down converter 28 and a second converter or up converter 30. These frequency converters, 28 and 30, respectively, convert the entered frequencies to a frequency which present day amplifiers can transport. The converters will be discussed in further detail in figures 3a and 3b. The utilization of two converters permit for the acceptance of two signals or polarized transponders that are of a different frequency.

In the down converting means 28, the transponder is converted down to a specified frequency. The specified frequency is the frequency that is required for the present day amplifiers for transportation. The newly converted frequencies are amplified through the amplifying means 32a. At means 32a, the converted frequencies are amplified so not to create second harmonics. These signals are then transferred to a conventional four way splitter 34a.

In the up converting means 30, the transponders are converted up to a specified frequency. The converted frequencies then are converted down via a down converter 36.

This process of converting up and then down provides for frequencies to be converted without difficulties and avoiding the forbidden conversion area.

The converted signals are transferred to the four way splitter 34a in order to combine the frequency of the amplified signal of 32a and frequency from converter 36. To synchronized the system, the frequencies from the phase lock loop (PLL) transmitter 38a are transmitted to the splitter 34a.

Form the splitter 34a, the signals are passed through an AC power separator 40 which routes 60 Volts power to a DC power supply of 18 Volts. This will permit for the dual frequencies from the satellite dish 12 to be transmitted simultaneously via a single coaxial cable 16ab. Dependent upon the length of the cable, an optional conventional amplifier 42 can be coupled thereto. Power from a power source 44 is inserted into the lines via a power inserter 46. The signals are amplified, as needed, with additional amplifiers 48. It is noted that the amplifiers are optional and are dependent to the distance that the head-in frequency processor 14a is located from the head-out frequency processor 18a or 18b. The power supply and power source 11 energizes the head-in frequency processor 14a.

From the single coaxial cable 16ba, the signals are adjusted via a tap 50a to permit for the appropriate decibels that are required for the head-out processor 18a or 18b.

The head-out frequency processor used for the head-in processor 14a illustrated in figure 1, can include two embodiments, dependent upon the embodiment for the source in combination with the satellite receiver.

The first embodiment for the head-out frequency processor is illustrated in figure 2 by way of dash line 18a. As seen in this embodiment, the simultaneously transmitted

signals enter the processor via conduit 16b. The conduit 16b is coupled to a conventional four (4) way splitter 34b. A conventional phase lock loop (PLL) receiver 56a is coupled to the splitter 34b~~a~~ to permit for the signals to be locked to the proper and desired frequencies. From the splitter 34b the first frequency is transmitted to a first converter 58a in order to permit for this signals or transponders to be converted up to a specified frequency. This up converted signal from the first converter or up converter 58a is then transmitted to the satellite receiver by way of a conduit 22b.

The second frequencies are transmitted to a first or up converter 52a and then are ~~transmuted~~ transported to a second or down converter 54a. This will permit for the signals to be converted to the desired frequency. This second or down converter is coupled to the satellite receiver 21 via conduit 22a. The signals from down converter 54a and from up converter 58a are in the original state, both frequency and polarity, when transmitted from the satellite to the head-in processor 14a, via lines 26a and 26b. The re-converted signals, frequencies and polarity in its original state, are ~~is~~ transmitted to the satellite receiver 21 via lines 22a and 22b. The satellite receiver 21 is coupled to a source 20 (illustrated as a television) to provide for proper transmission of the signals. The transmission line between the satellite receiver 21 and source 20 is illustrated but not labeled.

Hence, it is seen that the head-in processor converted the signals to different frequencies ~~frequency~~ to enable the transmission of two separate polarized signals via a single co-axial cable to a head-out processor. From the head-out processor, the signals are re-converted to their original state, which was received via lines 26a and 26b. For example, with satellite systems, frequencies typically range between 950-1450 MHz. If

the satellite transmits a frequency of 1450 for both the horizontal and vertical polarities, then one of the polarities, such as horizontal, is converted down to 560 MHz via converter 28. The second frequency of the second polarity, such as vertical, is first converted up to 2010 and then back down to 1070, via converters 30 and 36, respectively. Such a conversion allows for the two frequencies of two different polarities, 560 MHz (horizontal) and 1070 MHz (vertical), to be transmitted simultaneously on a single co-axial cable (16a and 16b).

As illustrated, this head-out frequency processor is the reverse process of the head-in processor. This is to provide for the signals to reconverted to ~~its~~ their original frequencies so as to provide for the satellite receiver 21 and source 20 to accept the signals. The single cable 16b accepts the signals at frequencies different than that of the source. Accordingly, the head-out processor must re-convert the signals to the frequencies that are utilized by the source 20.

An alteration of the satellite receiver requires and alteration in the head-out receiver processor. This alteration is illustrated in figure 2 and is shown in outline designated as reference 18b. In this design and configuration, the satellite receiver utilizes only one wire and accepts only one type of signal~~s~~, selectively, such as only left-hand circular or only right hand circular polarized signals.

As seen, the frequencies are tapped via 50b. The tap 50b is coupled to the head-out processor 18b via line 16b which is connected to a four (4) way splitter 34c. To provide for the signals to be locked in proper frequencies, the four way splitter is coupled to a phase lock loop (PLL) receiver 56b.

From the splitter 34c, the first signal of a first polarity is transmitted to a first or up converted 52b and then is transmitted to a second or down converter 54b. The conversion of the signals from up to down provides the benefit of converting the frequency without any mishap or error. This method of conversion will avoid the forbidden conversion area as well as provide for the original received frequency and polarity of the signals.

The signals of the second frequency and second polarity are transmitted to an up converter 58b which will inherently convert the signals to its original received frequency while maintaining its polarity. A polarity switch 60 is connected to converters 52b, 54b, and 58b for coupling the head-out processor to the satellite receiver via a single cable 22c and a joining means, which is a four way splitter 34d. The satellite receiver 21 is connected by way of a line (illustrated, but not labeled) to a source 20. In this embodiment, the switch 60 is used to determine which polarity will enter into the head-out processor 18b.

In the embodiments shown above, the satellite receiver 21 and source 20 are conventional components and as such, their schematics are not shown in further detail. The up and down converters used in the embodiment above will be discussed in further detail in figures 3a and figure 3b. Figure 3a represents the schematic rendering of the down converters (28, 36, 54a, and 54b) and figure 3b represents the schematic rendering of the up converters (30, 52a, 52b, 58a, and 56b).

As seen in the schematic diagram of figure 3a, the signal enters the down converter via line L1. The entered signal passes through a first capacitor C1 which is coupled to an amplifier AMP. After passing the amplifier AMP, the signal passes a

second capacitor C2 before entering a first low pass filter LPF1. This first LPF1 is coupled to a mixer which is coupled to a second LPF2. This second LPF2 is connected to a third capacitor C3 which is coupled to a second choke CH2. The mixer is also connected to an oscillator OSC. The oscillator is coupled to a PPL~~PLL~~. The first capacitor C1 is also connect to a first choke CH1~~2~~. Capacitors C, C1, C2, C3~~e~~ are coupled to the amplifier, oscillator, phase lock ~~lope~~ loop PPL, and the second low pass filter. Resistors R are coupled to the amplifier, oscillator, first low pass filter and mixer. Chokes are also coupled in series with capacitors ~~C~~ to provide for the chokes to be parallel with the amplifier AMP and the second low pass filter, respectively. As seen the chokes CH1 and CH2 (inductors) and capacitors C are a DC bypass filter network and provide a DC path and enable~~s~~ passing DC power to the antenna electronics.

The up converter is disclosed in figure 3b. As seen in this drawing~~s~~, the signal enters the up converter via a first line L2. The converter further includes an amplifier AMP that is coupled to a first low pass filter LP1. The amplifier is also coupled to an oscillator OSC. The oscillator and the first low pass filter are connected to a mixer. This mixer is coupled to a high pass filter HPF. The oscillator is also connected with a phase lock loop receiver PLL. A second amplifier AMP2 is coupled to the high pass filter HPF. A second low pass filter LPF2 is coupled to the second amplifier. Capacitors ~~C~~ are coupled to the first amplifier, first lower pass filter, and a ~~the~~ second amplifier. Resistors R are coupled to other first and second amplifiers, oscillator, first low pass filter, and mixer. Chokes are also used in this circuit. The fist choke is coupled to a capacitor which is coupled to the first amplifier. The second ~~ehock~~ choke is coupled to the phase lock loop.

Simplifying the ~~system~~ head out processor described above, will provide another ~~second~~ embodiment for the satellite broadcast receiving and distribution system. This ~~second~~ system is illustrated in further detail in figure 4. This embodiment simplifies the above described embodiments and also provides a device which avoids the forbidden path. Alteration for this embodiment occurs in the head-in equipment frequency processor 14b and the head-out frequency processor 18c.

As with the fist embodiment, a low-noise block converter (LNB) 24 will receive the signals from the satellite 12. This LNB 24, as stated previously, is conventional and is used for amplifying the respective polarized signals (Vertical-polarized signals and Horizontal-polarized signals or left-hand circular and right-hand circular polarization signals). Hence, after signals are received, they pass the low-noise block converter 24, to provide for the signals to enter the head-in equipment frequency processor 14b (illustrated in figure 4 as dashed lines) via conduits 26a and 26b, respectively.

The head-in equipment frequency processor 14b~~e~~, provides for the signals to be converted, via converters 28 and 30, as identified for the first embodiment. Thereby providing a system which includes frequencies that the present day amplifiers can transport. In this stage of the system, the object is to convert the signals of one polarity up (via converter 30) and to convert the signals of second polarization down (via converter 28).

From the conduits 26a and 26b, the signals are transmitted to a first converter or down converter 28 and a second converter or up converter 30. These frequency converters, 28 and 30, respectively, convert the entered frequencies to a frequency which

present day amplifiers can transport. The converters have been discussed in further detail in figures 3a and 3b. The utilization of two converters permit for the acceptance of two signals or polarized transponders that are of a different frequency.

In the down converting means 28, the transponder is converted down to a specified frequency. The specified frequency is the frequency that is required for the present day amplifiers for transportation. Though not illustrated, the newly converted frequencies are amplified through the amplifying means, as illustrated in figure 2 via element 32a. At the amplifying means 32, the converted frequencies are amplified so not to create second harmonics. These signals are then transferred to a conventional two-way splitter 34c.

In the up converting means 30, the transponders are converted up to a specified frequency. The converted signals are transferred to the two-way splitter 34c in order to combine the frequency of the amplified signals ~~and frequency~~. To synchronized ~~d~~ the system, the frequencies from the phase lock loop (PLL) transmitter 38a are transmitted to the splitter 34c.

From the splitter 34c, the signals are passed through a conventional tilt and gain 62. This will permit for the dual frequencies from the satellite dish 12 to be transmitted simultaneously via a single coaxial cable 16ab. Dependent upon the length of the cable, an optional conventional amplifier 42 can be coupled thereto. Power from a power source 44 is inserted into the lines via a power inserter 46. The signals are amplified, as needed, with additional amplifiers 48. It is noted that the amplifiers are optional and are dependent to the distance that the head-in frequency processor 14b is located from the

head-out frequency processor 18c. The power supply and power source 11 energize the head-in frequency processor 14b~~a~~.

From the single coaxial cable 16a~~b~~, the signals are adjusted via a tap 50a to permit for the appropriate decibels that are required for the head-out processor 18c ~~18a or 18b~~.

The head-out frequency processor used for the head-in processor 14b is illustrated in by way of dash line 18c. As seen in this embodiment, the simultaneously transmitted signals enter the processor via conduit 16b. The conduit 16b is coupled to a conventional two (2) way splitter 34d. A conventional phase lock loop (PLL) receiver 56a is coupled to the splitter 34d to permit for the signals to be locked to the proper and desired frequencies. From the splitter 34d the first frequency is transmitted to a first converter 52c in order to permit for the signals or transponders to be converted up to a specified frequency. ~~This up~~The converted signals from the first converter or up converter 52c ~~is~~ are then transmitted to the satellite receiver by way of a conduit 22a.

The second frequencies are transmitted to a down converter 54c. This will permit for the signals to be converted to the desired frequency. This second or down converter is coupled to the satellite receiver 21 via conduit 22b. The signals from down converter 54c and from up converter 52c are in the original state, both frequency and polarity, when transmitted from the satellite to the head-in processor 14b, via lines 26a and 26b. The re-converted signals, frequencies and polarity in its original state, are ~~is~~ transmitted to the satellite receiver 21 via lines 22a and 22b. The satellite receiver 21 is coupled to a source 20 (illustrated as a television) to provide for proper transmission of the signals.

The transmission line between the satellite receiver 21 and source 20 is illustrated but not labeled.

Hence, it is seen that the head-in processor converted the signals to different frequencies ~~frequency~~ to enable the transmission of two separate polarized signals via a single co-axial cable to a head-out processor. From the head-out processor, the signals are re-converted to their original state, which was received via lines 26a and 26b. The above identified embodiment is ideal for long distant use, i.e. exceeding 1000 feet. However, for shorter distance, i.e. less than 1000 feet, the components can be simplified again to provide for a device which is ideal for use in apartments or the like.

As seen in figure 5, the present invention includes the head-in equipment frequency processor 14c and the head-out frequency processor 18d.

As with the ~~first and second~~ previous embodiments, a low-noise block converter (LNB) 24 will receive the signals from the satellite 12. This LNB 24, as stated previously, is conventional and is used for amplifying the respective polarized signals (Vertical-polarized signals and Horizontal-polarized signals or left-hand circular and right-hand circular polarization signals). Hence, after signals are received, they pass the low-noise block converter 24, to provide for the signals to enter the head-in equipment frequency processor 14c (illustrated in figure 5 as dashed lines) via conduits 26a and 26b, respectively.

As seen, this head-in equipment frequency processor 14c is simplified. The head-in equipment frequency processor 14c, provides for signals of one frequency to be converted, up via converter 30, as identified for the first embodiment. Thereby providing

a system which includes frequencies that the present day amplifies can transport. In this stage of the system, the object is to convert the signals of one polarity up (via converter 3~~0~~6). The signal of the second polarity is amplified via conventional amplifier 32a.

From the conduits 26a and 26b, the signals are transmitted to a first converter or ~~down~~ up converter ~~52d~~ 30 and an amplifier 32a. The down converters have been discussed in further detail in figure 3a.

From the amplifier and up converter, the signals are transferred to a conventional hybrid mixer ~~34a~~36. From the mixer, the signals pass a ~~diplexer~~diplexer 64. ~~Exiting~~ Signals exit the diplexer ~~can occur~~ via a single co-axial cable 16a.

From the single coaxial cable 16a, the signals can be adjusted via a tap (illustrated, but not labeled) to permit for the appropriate decibels that are required for the head-out processor 18d.

The head-out frequency processor used for the head-in processor 14c is illustrated in by way of dash line 18d. As seen in this embodiment, the simultaneously transmitted signals enter the processor via conduit 16b. The conduit 16b is coupled to a conventional mixer 36b. ~~to the proper and desired frequencies.~~ From the mixer 36b the first frequency is transmitted to an amplifier 32b and the second frequency of a different polarity is transferred to a down converter 52d for converting the frequency to its original state.

The re-converted signals, frequencies and polarity in its original state, is transmitted to the satellite receiver 21 via lines 22a and 22b. The satellite receiver 21 is coupled to a source 20 (illustrated as a television) to provide for proper transmission of

the signals. The transmission line between the satellite receiver 21 and source 20 is illustrated but not labeled.

Hence, it is seen that the head-in processor converted the signals to different frequency to enable the transmission of two separate polarized signals via a single co-axial cable to a head-out processor. From the head-out processor, the signals are re-converted to their original state, which was received via lines 26a and 26b. The above

The satellite system of the present invention will permit for two signals of different frequency and polarities to travel simultaneously via a single coaxial cable. The use of this will provide for a satellite system that is versatile, economical and compact. The usage of the single cable permits for a system that can accept satellite broadcasting in places that were previously render impossible. These places include mid/high–rise office buildings, condominiums, hospitals, schools, etc. The unique design and configuration enables the signals to be transmitted via the existing wiring of the buildings. The only renovations that may need to be done is the upgrading of the existing amplifiers.

While the invention has been particularly shown and described with reference to an embodiment thereof, it will be understood by those skilled in the art that various changes in form and detail may be made without departing from the spirit and scope of the invention.

We claim:

1. A satellite ~~broadcasting~~ signal distribution system signal distribution system for distributing television program signals to satellite receivers having a predetermined receive frequency range, the system comprising:

a satellite dish ~~coupled to a low noise block converter~~] that receives polarized television program signals from at least one satellite;;

~~said low noise block converter is coupled to a first means of~~ a first frequency converter coupled to the satellite dish, the first frequency converter converting at least a first plurality of television program signals received ~~vertical polarization signals and horizontal polarization signals or left hand circular polarization signals and right hand circular polarization signals~~ from a the satellite to a frequency range that is at least partially outside of the satellite receive frequency range, the first frequency converter applying said converted first plurality of television program signals~~and transmitting~~ simultaneously with a second plurality of television program signals received from the satellite ~~via~~ onto a single coaxial disuribution cable ~~for enabling~~ to enable two different ~~frequencies and polarities~~ and distinct pluralities of television program signals to be ~~transmitted~~ stacked onto the cable and distributed simultaneously ~~via~~ over said single coaxial cable;

~~a second means is coupled to said first means;~~

~~said second means~~ a second frequency converter coupled to the coaxial cable, the second frequency converter further converting said converted first plurality of television

signals to a further frequency range that is within the satellite receiver frequency rangeconverts said vertical polarization signals and said horizontal polarization signals or said left hand circular polarization signals and said right hand circular polarization signals from said first means to its original received state from said satellite dish;

a satellite receiver is coupled to said second means; and

said source is coupled to said satellite receiver. wherein said second frequency converter performs a frequency down-conversion and wherein all of the television program signals within the first plurality of television program signals are received by the satellite dish with a common polarization

2. A satellite system as in claim 1 wherein a power source is could to said first means and said power source powers said first means.

3. A satellite system as in claim 1 wherein said second means provides for said signals to be converted separately and independently to said satellite receiver by a transmitting means.

4. A satellite system as in claim 1 wherein said second means provides for a transmitting means for said signal to be selectively converted to said satellite receiver via s a first cable coupled to said second means.

5. A satellite system as in claim 4 wherein said transmitting means further includes a polarity switch for permitting said signals to be selectively converted to said satellite receiver.

~~6. A satellite system as in claim 1 wherein said first means includes a first converting system for converting said signals of a fist direction to a desired first frequency and polarization and a second converting system for converting said signals of a second direction to a desired second frequency and polarization.~~

7. In a satellite distribution system that distributes received satellite signals to satellite receiver equipment through a distribution cable, said satellite receiver equipment producing a control signal, said satellite disribution system further comprising:

an arrangement coupled between the distribution cable and the satellite receiver, said arrangement including a block converter that frequency-converts a channel block carried by the distribution cable so it can be decoded by said satellite equipment, wherein the output of said block converter is a block of plural channels, said arrangement further including an electrically operated polarity switch coupled to said block converter, said plurality switch operating to select between said frequency-converted channel block and at least one further channel block carried by said distribution cable for application to said satellite receiver in response to said control signal produced by said satellite receiver.

8. A system for distributing received satellite signals via a distribution cable to at least one satellite receiver, said satellite receiver having a frequency range and being coupled to a second end of said distribution cable, said distribution cable also having a first end, said system including:

a satellite dish that receives a first block of plural channels of a first polarization and a second block of plural channels of a second polarization;

a frequency converter coupled to at least said received first block of plural channels, said frequency converter converting at least said first channel block to a

frequency band that is at least partially outside of the satellite receiver frequency range;

a combining arrangement coupled to said distribution cable first end, said combining arrangement simultaneously applying said frequency-converted first channel block and said second channel block to said first end of said distribution cable;

a further frequency converter connected to said distribution cable second end, said further frequency converter frequency-converting said first channel block to provide a block of plural channels within the frequency range of said satellite receiver; and

a switch adapted to operate under control of said satellite receiver, said switch switching between said first channel block and said second channel block for application to said satellite receiver.

9. The system of claim 8 wherein said further frequency converter comprises a down-converter that down-converts said first channel block to a lower frequency range.

10. The system of claim 8 wherein said first-mentioned frequency converter comprises an up-converter that up-converts said first frequency block to a higher frequency for application to said distribution cable.

11. The system of claim 8 wherein said switch comprises an electrically operated switch.

12. The system of claim 8 wherein said first polarization is different from said second polarization.

Abstract of the Disclosure

The present invention provides a satellite broadcast receiving and distribution system that will permit for the transmission of vertical and horizontal or left-hand circular and right-hand circular polarization signals simultaneously via a single coaxial cable. The system of the present invention will accommodate two different polarity commands from two or more different sources at the same time. This satellite broadcast receiving and distribution system of the present invention will provide for the signals received from the satellite to be converted to standard frequencies so as to permit for signals to travel via existing wiring which the present day amplifiers can transport in buildings, high-rises, hospitals, and the like so that satellite broadcasting can be viewed by numerous individuals by way of a single satellite antenna.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

GREEN et al. Atty. Ref.: 850-15

Serial No. to be assigned Group: 2745

Filed: concurrently herewith Examiner: Vo, N.

For: SATELLITE BROADCAST RECEIVING AND DISTRIBUTION SYSTEM

* * * * * * * * * * * *

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

DECLARATION OF JAMES A. GREEN, SR.

I, the inventor in the above-identified application, do hereby declare:

1. I was born on November 2, 1922;

2. I am 77 years old.

3. I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 7-21-2000

James A. Green, Sr.

Attorney's Docket No 4270A

COMBINED DECLARATION AND POWER OF ATTORNEY
(ORIGINAL, DESIGN, NATIONAL STAGE OF PCT, SUPPLEMENTAL, DIVISIONAL, CONTINUATION OR CIP)

As a below named inventor, I hereby declare that:

JAN 8 1998

TYPE OF DECLARATION

This declaration is of the following type (check one applicable item below)

_____ original
_____ design
__X__ supplemental

NOTE *If the declaration is for an International Application being filed as a divisional, continuation or continuation-in-part application do not check next item, check one of the last three items.*

_____ national stage of PCT

NOTE *If one of the following 3 items apply then complete and also attach ADDED PAGES FOR DIVISIONAL, CONTINUATION OR CIP*

_____ divisional
_____ continuation
__X__ continuation-in-part

INVENTORSHIP IDENTIFICATION

WARNING: *If the inventors are each not the inventors of all the claims an explanation of the facts, including the ownership of all the claims at the time the last claimed invention was made, should be submitted*

My residence, post office address and citizenship are as stated below next to my name, I believe I am the original, first and sole invention (*if only one name is listed below*) or an original, first and joint inventor (*if plural names are listed below*) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

TITLE OF INVENTION

Satellite Broadcast Receiving and Distribution System

SPECIFICATION IDENTIFICATION

the specification of which (complete (a), (b), or (c))

(a) _____ is attached hereto

(b) __X__ was filed on April 10, 1997 as a Continuation-in-part Serial No. 08/838,677 or ____ Express mail no . as Serial No not yet known _____ and was amended on _____ (*if applicable*).

NOTE *Amendments filed after the original papers are deposited with the PTO which contain new matter are not accorded a filing date by being referred to in the declaration. Accordingly, the amendments in-*

involved are those filed with the application papers or, in the case of a supplemental declaration, are those amendments claiming matter not encompassed in the original statement of invention or claims. See 37 CFR 1 67

(c) _____ was described and claimed in PCT International Application No _____ filed on _____ and as amended under PCT Article 19 on _____ (*if any*).

ACKNOWLEDGMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, § 1.56(a)

__X__ In compliance with this duty there is attached an information disclosure statement 37 CFR 1 97

PRIORITY CLAIM

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application for patent or inventor's certificate or any PCT international application (s) designating at least one country other than the United States of America filed by me on the same subject matter having a fling date before that of the application(s) of which priority is claimed

(complete (d) or (e))

(d) __x__ no such applications have been filed

(e) _____ such applications have been filed as follows

Note *Where item (c) is entered above and the International Application which designated the U.S. claimed priority check item (e), enter the details below and make the priority claim.*

EARLIEST FOREIGN APPLICATION(S), IF ANY FILED WITHIN 12 MONTHS (6 MONTHS FOR DESIGN) PRIOR TO THIS U.S. APPLICATION

COUNTRY	APPLICATION NUMBER	DATE OF FILING (day, **month**, year)	PRIORITY CLAIMED UNDER 37 USC 119
			☐ YES ☐ NO
			☐ YES ☐ NO
			☐ YES ☐ NO
			☐ YES ☐ NO
			☐ YES ☐ NO

ALL FOREIGN APPLICATION(S), IF ANY FILED MORE THAN 12 MONTHS (6 MONTHS FOR DESIGN) PRIOR TO THIS U S APPLICATION

_____

_____

_____

POWER OF ATTORNEY

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith (*List name and registration number*)

Lawrence L Carnes	Reg No 39,128
Franklin J Cona	Reg No 33,855
Trinidad K Dixon	Reg No.. 38,433

(check the following item, if applicable)

___ Attached as part of this declaration and power of attorney is the authorization of the above-named attorney(s) to accept the following instructions from my representative(s)

SEND CORRESPONDENCE TO

Carnes, Cona and Dixon
2894-A Remington Green Lane
Tallahassee, FL 32308

DIRECT TELEPHONE CALLS TO
(*Name and telephone number*)
Larry L. Carnes
(904) 386-8676

DECLARATION

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon

SIGNATURE(S)

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Inventor's signature James A. Green Sr.
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Inventor's signature Austin S. Coker, Jr.
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Tallahassee, FL 32302

CHECK PROPER BOX(ES) FOR ANY OF THE FOLLOWING ADDED PAGE(S) WHICH FORM A PART OF THIS DECLARATION

___ Signature for third and subsequent joint inventors. Number of pages added _____

___ Signature by administrator(trix), executor(trix) or legal representative for deceased or incapacitated inventor Number of pages added _____.

___ Signature for inventor who refuses to sign or cannot be reached by person authorized under 37 CFR 1 47 Number of pages added _____.

__X__ Added pages to combined declaration and power of attorney for divisional, continuation, or continuation-in-part (CIP) application
__1__ number of pages added __1__.

* * *

___ Authorization of attorney(s) to accept the follow instructions from representative

* * *

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__x__ **This declaration ends with this page**